

CLAIMS

1. A sensing device for sensing a specific binding between an analyte and a recognition molecule, comprising a sensor with a micro-electronically addressable
5 sensor surface comprising an individually addressable thermal or electrochemical activation element arranged to activate said sensor surface and a recognition molecule bound to said sensor surface by at least a thermal or electrochemical activation step, wherein said sensor is
10 arranged to sense a specific binding between said recognition molecule and an analyte.

2. The sensing device as in claim 1 comprising a plurality of micro-electronically individually addressable sensor surfaces, each sensor surfaces being
15 individually activatable.

3. The sensing device as in claim 1 or 2 comprising a plurality of micro-electronically individually addressable sensors.

4. The sensing device of any of the claims 1
20 to 3 wherein the sensor surface comprises an anchoring layer.

5. The sensing device of claim 4 wherein the anchoring layer is selected from the group consisting of chemical molecules or a metal layer.

25 6. The sensing device of claim 4 or 5 wherein the anchoring layer is activatable by thermal or electrochemical actuation.

7. The sensing device of any of the preceding claims 1 to 6, wherein said activation element is an
30 electrochemical activation element.

8. The sensing device of claim 7 wherein the sensor surface comprising a surface layer, the surface layer comprising a material arranged to allow electrontransfer over said surface layer.

9. The sensing device according to claim 8 wherein the material of said surface layer is selected from the group consisting of metals, thin oxides, semiconductors and organic layer.

5 10. The sensing device of any of the preceding claims 1 to 7, wherein said activation element is a thermal activation element.

 11. The sensing device according to claim 10 wherein said thermal activation element is selected from
10 the group consisting of resistor, a microwave-heatable element and a peltier element.

 12. The sensing device according to claim 10 or 11, wherein each individual sensor surface is thermally isolated from heat fluxes from neighbouring sensor
15 surfaces.

 13. The use of a microelectronic device for localised/patterned deposition and/or desorption of (bio)molecules onto the surface of a device using addressable microelectronic structures, whereby adsorption
20 or deposition and/or desorption of (bio)molecules on said surface is obtained via thermal and/or electrochemical spotting.

 14. The use of a device for localised/patterned deposition and/or desorption of
25 (bio)molecules onto the surface of a device using addressable structures wherein the adsorption of deposition and/or desorption of (bio)molecules on said surface is obtained via thermal and/or electrochemical spotting.

 15. A method for sensing a binding event,
30 said method comprising the following steps:

- Providing a sensing device such as in any of the claims 1 to 12,
- Activating the sensor surface,

- Depositing recognition molecules from a liquid or vapour phase,
- Detecting a binding event between said recognition molecule and an analyte.

5 16. A method for depositing molecules onto a surface, said method comprising the following steps:

- Providing a device, said device comprising a plurality of surfaces wherein at least one surface is individually thermally activatable
- 10 - Activating the at least one surface,
- Depositing molecules onto the at least one surface

 17. A method as recited in claim 16 further comprising the step of selecting at least one surface followed by the activation step.

15 18. A method as recited in claim 16 wherein the device is a micro-electronic chip.

 19. A method as recited in claim 16 wherein the activation step is activation by laser light.

 20. A method as recited in claim 16 wherein
20 said device further comprise an individually thermally activatable micro-electronic structure for activating the at least one surface.